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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/736,317	12/15/2000	Masaki Nose	001628	8718

7590 07/29/2004

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EXAMINER

THOMPSON, JAMES A

ART UNIT	PAPER NUMBER
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2624

DATE MAILED: 07/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/736,317

Applicant(s)

NOSE, MASAKI

Examiner

James A Thompson

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-11 is/are rejected.
- 7) ☒ Claim(s) 1-10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Drawings***

2. The drawings are objected to because figure 4, element 71 shows a blank box. Said box should indicate what it designates, specifically a difference circuit. Figure 15 fails to show conditional statements ("yes" and no" as with S5) for blocks S2, S3 and S4. It is not possible to determine from figure 15 the direction of operation for particular conditions. Furthermore, there should be no arrow projecting from S10 to S11 and no arrow projecting from S11 to "end" since these steps do not occur. The drawings should be modified to show arrows going directly from S3 to S11 and from S2 to "end". Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement

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sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because the abstract uses legal claim language, particularly "method comprising steps of...". The abstract should be modified so that it is in the required narrative form. Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities: On page 18, lines 8-10 (equation 2) and lines 12-13 (equation 3), the words "square root sign" should be replaced with an actual square root sign in order to properly format the equation.

Appropriate correction is required.

### ***Claim Objections***

5. Claims 1-5 are objected to because of the following informalities:

In claim 1, line 3, "comprising steps of:" should be changed to "comprising the steps of:" in order to put claim 1 in proper English form.

In claim 2, line 2, "comprising steps of" should be changed to "comprising the steps of:" in order to put claim 2 in proper English form and to give claim 2 the proper punctuation.

In claim 2, line 6, "average value, and" should be changed to "average value; and" in order to give claim 2 the proper punctuation.

Claims 3-5 are dependent upon claim 1 and are therefore also objected to.

Appropriate correction is required.

6. Claims 6-10 are objected to because of the following informalities:

In claim 6, lines 2, "comprising" should be changed to "said processor comprising:" in order to put claim 6 in the proper form and give claim 6 the proper punctuation.

In claim 6, line 3, "said input image and" should be changed to "said input image; and" in order to give claim 6 the proper punctuation.

In claim 6, line 9, "diffused quantization errors and" should be changed to "diffused quantization errors, and" in order to give claim 6 the proper punctuation for a list of quantities to be added together.

In claim 8, line 2, "controlls" should be changed to "controls" to put the word in proper English form.

Claims 7, 9 and 10 are dependent upon claim 6 and are therefore also objected to.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "said diffused quantization errors" in lines 8-9. There is insufficient antecedent basis for this limitation in the claim.

Since claims 7-10 are dependent upon claim 6, claims 7-10 are also rejected.

9. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "said diffused quantization errors" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "said addition result" in line 9. There is insufficient antecedent basis for this limitation in the claim.

***Allowable Subject Matter***

10. Claims 6-11 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

11. Claims 1-5 would be allowable if rewritten or amended to overcome the objection(s) set forth in this Office action.

12. The following is a statement of reasons for the indication of allowable subject matter:

Claims 1, 6 and 11 respectively disclose an image processing method, an image processor, and a storage medium for storing a program to perform halftone processing. Said method, said processor, and said program create a sine wave that is amplitude modulated and frequency modulated based on the average value of a target pixel value and the peripheral pixel values. Said sine wave is added to the quantization errors and

said target pixel value. The result of the addition is then quantized to obtain a grayscale level.

The closest prior art to the application is Metcalfe (US Patent 5,822,464), which teaches the modulation of the amplitude of a sine wave and adding said sine wave to the quantization errors and the target pixel value. The result of the addition is then quantized to obtain a halftone image. The amplitude modulation is based solely on the target pixel value. Metcalfe does not teach modulating both the amplitude and the frequency of the sine wave and performing said modulations based on the average value of the target pixel value and the peripheral pixel values.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

David J. Metcalfe, US Patent 6,449,061 B2, 10 September 2002.

Naoyuki Nishikawa, US Patent 6,173,081 B1, 9 January 2001.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 703-305-6329. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson  
Examiner  
Art Unit 2624

JAT  
July 22, 2004



THOMPSON  
TOMMY LEE  
PRIMARY EXAMINER